

WHAT IS CLAIMED IS:

1. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

applying electronic printhead skew correction to image data corresponding to at least one of a plurality of image planes to generate skew corrected image data; and

5 modifying an associated halftone screen to eliminate distortion introduced into said associated halftone screen by said electronic printhead skew correction.

2. The method of claim 1, further comprising the steps of:

adding text characters to said skew corrected image data to form a composite

bit map;

dividing said composite bit map into a plurality of blocks;

5 identifying a vertical centerline of each of said text characters;

associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks; and

shifting an entirety of said each of said text characters by a skew correction factor associated with said respective one of said plurality of blocks.

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3. The method of claim 2, further comprising the step of calculating said skew correction factor to be applied to each block of said plurality of blocks by the formula:

$$CF(SK, S) = (SW * (S - 1)) / (SL / (SK + 1)) + X$$

wherein:

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CF is the skew correction factor, rounded down to the nearest integer;

SK is a skew magnitude;

SW is a width of each block;

S is a number of the block under consideration;

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SL is a scan length of a full row of said composite bit map; and

X is a skew and bow offset.

4. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

determining which of a plurality of printhead units require printhead skew correction;

5 receiving continuous tone data to be printed;

generating from said continuous tone data a plurality of image bytemaps, each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes and to a respective one of said plurality of printheads;

10 applying electronic printhead skew correction to each image bytemap associated with a printhead unit requiring printhead skew correction to generate a corresponding skew corrected image bytemap;

15 after the step of applying electronic printhead skew correction, applying an associated halftone screen to each of said corresponding skew corrected image bytemap and to each of said plurality of image bytemaps not receiving application of electronic printhead skew correction to form corresponding halftoned image data; and

serializing each of said corresponding halftoned image data to a respective one of said plurality of printhead units.

5. The method of claim 4, wherein prior to the step of applying an associated halftone screen, said method further comprising the steps of:

adding text characters to at least one of said plurality of image bytemaps to generate at least one composite bytemap;

5 dividing said composite bytemap into a plurality of blocks;

identifying a vertical centerline of each of said text characters;

associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks; and

10 shifting an entirety of each of said text characters by a skew correction factor associated with said respective one of said plurality of blocks.

6. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

determining which of a plurality of printheads units require printhead skew correction;

5 receiving continuous tone data to be printed;

generating from said continuous tone data a plurality of image bytemaps, each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes and to a respective one of said plurality of printheads, and wherein at least one of said plurality of image bytemaps includes text characters and said at least
10 one of said plurality of image bytemaps corresponds to a printhead which requires printhead skew correction;

dividing each of said plurality of image bytemaps into a plurality of blocks;

assigning a skew correction factor to each of said plurality of blocks;

identifying a vertical centerline of each of said text characters;

15 associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks; and

shifting an entirety of each of said text characters by said skew correction factor associated with said respective one of said plurality of blocks.

7. The method of claim 6, further comprising the steps of:

applying a halftone screen to the image data of each of said plurality of image planes to generate corresponding halftone image data; and

5 serializing each of said corresponding halftone image data to a respective one of said plurality of printhead units.

8. The method of claim 6, further comprising the step of calculating said skew correction factor to be applied to each block of said plurality of blocks by the formula:

$$CF(SK, S) = (SW * (S - 1)) / (SL / (SK + 1)) + X$$

wherein:

5 CF is the skew correction factor;

SK is a skew magnitude;

SW is a width of each block;

S is a number of the block under consideration;

SL is a scan length of a full row of an image bit map; and

10 X is a skew and bow offset.

9. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

determining which of a plurality of printheads units require printhead skew correction;

5 receiving continuous tone data to be printed;

generating from said continuous tone data a plurality of image bytemaps, each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes and to a respective one of said plurality of printheads;

establishing at least one halftone screen; and

10 for each of said plurality of image planes associated with a printhead requiring printhead skew correction,

shifting a starting point of application of said at least one halftone screen to the corresponding image bytemap in a direction opposite to and of a magnitude equal to a shift direction and shift magnitude of an electronic printhead skew correction which is

15 to be applied,

applying said at least one halftone screen to said corresponding image bytemap,

applying said electronic printhead skew correction to the halftoned image bytemap of the first applying step, and

20 serializing the halftoned image bytemap of the second applying step to the respective one of said plurality of printhead units.

10. The method of claim 9, wherein said step of applying said electronic printhead skew correction further comprises the step of determining a skew correction factor by the formula:

$$CF(SK, S) = (SW * (S - 1)) / (SL / (SK + 1)) + X$$

5 wherein:

CF is the skew correction factor, rounded down to the nearest integer;

SK is a skew magnitude;

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SW is a width of each block of a plurality of blocks
defined across the width of one image bit map;
S is a number of a block under consideration;
SL is a scan length of a row of data of said one image bit map;
and
X is a skew and bow offset.

11. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

determining which of a plurality of printheads units require printhead skew correction;

5 receiving continuous tone data to be printed;

generating from said continuous tone data a plurality of image bytemaps, each of said plurality of image bytemaps corresponding to a respective one of a plurality of image planes and to a respective one of said plurality of printheads, and wherein at least one of said plurality of image bytemaps includes text characters and said at least one of said plurality of image bytemaps corresponds to a printhead which requires printhead skew correction;

dividing each of said plurality of image bytemaps into a plurality of blocks;
assigning a skew correction factor to each of said plurality of blocks;
identifying a vertical centerline of each of said text characters;
15 associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks;

wherein for each text character bridging a block boundary between an associated block and an adjacent block, performing the step of shifting a minority portion of said each text character located in said adjacent block not present in said associated block by an amount corresponding to a difference between a skew correction factor corresponding to said associated block and a skew correction factor corresponding to said adjacent block; and

20 after said step of shifting, applying electronic printhead skew correction to each image bytemap associated with each said printhead unit which requires said
25 printhead skew correction.

12. The method of claim 11, further comprising the step of applying a halftone screen to said plurality of image bytemaps after the step of applying electronic printhead skew correction.

13. The method of claim 11, further comprising the step of determining said skew correction factor based on the formula:

$$CF(SK, S) = (SW * (S - 1)) / (SL / (SK + 1)) + X$$

wherein:

- 5 CF is the skew correction factor, rounded down to the nearest integer;
- SK is the skew magnitude;
- SW is a width of each said plurality of blocks;
- S is a number of the block under consideration;
- 10 SL is a scan length of a full row of an image bit map; and
- X is a skew and bow offset.

14. A method for reducing the occurrence of print artifacts in an imaging machine, comprising the steps of:

- applying electronic printhead skew correction to image data corresponding to at least one of a plurality of image planes to generate skew corrected image data; and
- 5 modifying an associated halftone screen to eliminate halftone noise introduced by said electronic printhead skew correction.

15. The method of claim 14, further comprising the steps of:

- adding text characters to said skew corrected image data to form a composite bit map;
- dividing said composite bit map into a plurality of blocks;
- 5 identifying a vertical centerline of each of said text characters;
- associating said vertical centerline of said each of said text characters with a respective one of said plurality of blocks; and

shifting an entirety of said each of said text characters by a skew correction factor associated with said respective one of said plurality of blocks.

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16. The method of claim 15, further comprising the step of calculating said skew correction factor to be applied to each block of said plurality of blocks by the formula:

$$CF(SK, S) = (SW * (S - 1)) / (SL / (SK + 1)) + X$$

5

wherein:

CF is the skew correction factor, rounded down to the nearest integer;

SK is a skew magnitude;

SW is a width of each block;

10

S is a number of the block under consideration;

SL is a scan length of a full row of said composite bit map; and

X is a skew and bow offset.